

STACKING DEVICE FOR
THERMOPLASTIC CONTAINERS
AND/OR LIDS

Cross-Reference To Related Application

[001] This application is based on and claims priority from provisional patent Application Number 60/429,687 filed on November 27, 2002.

Technical Field

[002] The present invention relates to thermoplastic containers and lids, and more particularly to a device for stacking thermoplastic containers and/or lids.

Background of the Invention

[003] The use of containers for the storage of items is well known. Such containers are used to store a variety of articles, from food to general household items including everything from craft supplies to children's toys. Generally, such containers can be characterized by shape and size. Containers that do not include a lid require a separate sealing member, such as a plastic wrap or aluminum foil. Often, the plastic wrap or aluminum foil is loose or jostled during movement of the container, and hence, the container is usually not properly sealed or closed to prevent contents therein from spilling. Containers that include lids overcome this problem.

[004] As is well known, many different types and sizes of container lids exist. When such container lids are placed together in a confined space, such as a cupboard, cabinet, drawer, shelf, refrigerator, or the like, a disorganized condition can develop, preventing a user from easily locating a container lid of a particular size and shape. Further, as a user is attempting to locate a particular container lid, other items may be jostled, thereby causing a container lid or one or more of the items to fall off a supporting surface to the floor, resulting in breakage of the items and/or spilling of contents and/or lost container lids. Still further, when container lids are stacked on top of each other in an unconfined location, the container lids tend to slide out of the stacked configuration and into a disorganized state making it difficult to locate the proper size and/or shaped container lid.

[005] Carroll, U.S. Patent No. 4,241,668 discloses a frame for mounting a container and a cover below a supply shelf. The frame is suspended from spaced apart rails depending from the supply shelf by multiple hooks. The frame includes side beams with inwardly extending flanges for engaging the container and cover and allowing the container and lid to inserted and removed from the frame.

[006] Bross U.S. Patent No. 4,632,472 discloses a slidable drawer system mounted below a shelf. Guide rails are mounted to the shelf and receive flanges of the drawer, wherein the drawer slides in and out of the guide rails. A finger is attached to each guide rail wherein the fingers contact the rear wall of the drawer to prevent removal of the drawer from the guide rails in a first direction. To completely disengage the drawer from the guide rails the fingers must be pushed upwardly away from the rear wall to disengage the drawer from the guide rails. A front portion of the drawer includes extending side walls that contact the guide rails as the drawer is being pushed inwardly, thus preventing the drawer from sliding out of the housing in a second direction.

[007] DeBruyn U.S. Patent No. 4,653,818 discloses a dry food storage container system wherein containers are supported by hanger plates that form a rack and are adapted to slide in and out of a cabinet. An upwardly projecting lug formed on the hanger plate restricts free sliding movement of the container. The containers may be laterally removed from or laterally inserted into the hanger plates when the container is lifted slightly over the lugs.

[008] Marino Jr. U. S. Patent No. 5,964,359 discloses a modular storage system for multiple containers including a base having a top wall, a side wall, and a bottom wall wherein the bottom wall has a front opening cutout. A jar with cover may be inserted into the opening wherein the cover rests on the bottom wall and suspends the jar with contents therefrom.

[009] Semon et al. U.S. Patent No. 6,056,378 discloses an add-on drawer and a method of mounting the same to a horizontal surface. The drawer includes a tray for storing items and at least two rails for slidably supporting the drawer. Each rail includes stops to prevent removal of the drawer from below the horizontal surface.

[0010] Dimes U.S. Patent No. 371,044 discloses a plate rack. The rack holds plates in a vertical position. The rack utilizes base supports and wire bent to the curve of the plate to support the plate in the vertical position.

[0011] Moore U.S. Patent No. 1,349,084 discloses a kettle cover drainer. The device acts as a stand utilizing bent wires to hold a kettle cover in a vertical position in order for the cover to drain of any liquid. The wires are held in a vertical orientation by attachment to a base that has a drain for funneling runoff from the kettle cover.

5 [0012] Hay U.S. Patent No. 1,994,195 discloses a rack for drying or storing dishes. The rack utilizes a horizontal wire frame having a length much greater than its width along with vertical wires in contract with the horizontal wires. Dishes are then placed in the rack in a vertical position and held there by the vertical wires.

10 [0013] Greensfelder U.S. Patent No. 2,600,755 discloses a wire cover rack. The rack rests on a horizontal surface and utilizes a series of interconnected wires to support the covers. The rack comprises a base section of parallel wires and a back section of parallel wire to support the covers. The base section is raised by a support at one end so it is not parallel with the surface and the back section is angled away from vertical and toward the base. Thus, when covers are inserted vertically they contact both sections and are held in the vertical position.

15 [0014] Swan U.S. Patent No. 4,396,123 discloses a tape cassette holding bracket. The holding bracket is a generally L-shaped member with a plurality of slots for holding cassettes. The slots further include flanges that extend into the slots that hold the cassette in place at the wider portion of the cassette.

20 [0015] Vaughn U.S. Patent No. 5,660,284 discloses a storage rack for container lids. The rack is capable of storing lids in either a horizontal or vertical position. The system utilizes adjustable panels that store the lids at angles that hold the lids in the rack in either the horizontal or vertical position.

25 Summary of the Invention

[0016] In accordance with one aspect of the present invention, a stacking device for a thermoplastic container lid includes a main member, a plurality of support members extending from the main member having a first plurality of interference fits and a plurality of wall members joined to the support surfaces having a second plurality of interference fits. The first plurality of interference fits are capable of resisting relative movement of the support members and the lid in a first direction and the second plurality of interference

fits are capable of resisting relative movement of the wall members and the lid in a second direction transverse to the first direction.

5 [0017] In accordance with another aspect of the present invention, a stacking device for includes a main member, a plurality of first means joined to the main member and having a plurality of first interference fits, and a plurality of second means extending from the first means and having a plurality of second interference fits. The first interference fits are capable of resisting relative movement of the stacking device and container lids in a first direction and the second interference fits is capable of resisting relative movement of the stacking device and container lids in a second direction transverse to the first direction.

10 The stacking device further includes third means for establishing a resistance force that increases during insertion and removal of container lids from the stacking device.

[0018] In accordance with still another aspect of the present invention, a combination includes a stacking device including a main member, a first plurality of support members extending from the main member, and a second plurality of wall members extending from the support members, the support members and wall members defining a third plurality of cavities bounded by fourth and fifth pluralities of openings. The combination further includes a sixth plurality of container lids wherein the support member and wall member define interference fits with the container lids and wherein each of the container lids experiences a resistance force that increases during insertion and removal from the stacking device.

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[0019] In accordance with yet another aspect of the present invention, a one-piece stacking device includes a main member, support members extending from the main member and having a plurality of first interference fits, and wall members extending from the support members and having a plurality of second interference fits. The first interference fits are capable of resisting relative movement of an object in a first direction and the second interference fits are capable of resisting relative movement of an object in a second direction transverse to the first direction. The stacking device further includes a plurality of openings defined by the support members and the wall members, wherein the wall members include interference members adjacent the openings.

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30 [0020] In accordance with another aspect of the present invention, a stacking device includes a main member, support members joined to the main member and defining a first

plurality of interference fits and wall members extending from the support members and defining a second plurality of interference fits. The first interference fits are capable of resisting movement of an object in a first direction and the second interference fits are capable of resisting movement of the object in a second direction transverse to the first direction. The main member, the support members, and the wall members are formed integrally, a plurality of openings is defined by the support members and the wall members, and the wall members include interference members adjacent the openings.

[0021] In accordance with a further embodiment of the present invention, a combination includes a stacking device having a main member, a plurality of support members extending from the main member, and a plurality of wall members extending from the support members. The support members and wall members define a plurality of cavities. The main member, the support members, and the wall members are formed integrally. The combination further includes a container lid wherein the support members and wall members define interference fits with the container lids.

[0022] Other aspects and advantages of the present invention will become apparent upon consideration of the following detailed description.

Brief Description of the Drawings

[0023] FIG. 1 is an isometric view of a first side of a first embodiment of the stacking device of the present invention;

[0024] FIG. 2 is an isometric view of a second side of the stacking device of FIG. 1;

[0025] FIG. 3 is an elevational view of the stacking device of FIG. 1;

[0026] FIG. 4 is an isometric view similar to FIG. 1 illustrating the insertion of container lids into the stacking device of FIG. 1;

[0027] FIG. 5 is an isometric view similar to FIG. 4 of container lids fully inserted into the stacking device of FIG. 1;

[0028] FIG. 6 is an isometric view similar to FIG. 4 illustrating the insertion of a container with lid into the stacking device of FIG. 1;

[0029] FIG. 7 is an isometric view similar to FIG. 4 of the container with lid fully inserted into the stacking device of FIG. 1;

[0030] FIG. 8 is a side elevational view of the stacking device of FIG. 1 attached to a cabinet shelf;

[0031] FIG. 9 is an isometric view similar to FIG. 2 of the stacking device of FIG. 1 molded into a shelf;

5 [0032] FIG. 10 is an isometric view of a first side of a second embodiment of the stacking device of the present invention;

[0033] FIG. 11 is an isometric view of a second side of the stacking device of FIG. 10;

[0034] FIG. 12 is an elevational view of the stacking device of FIG. 10;

10 [0035] FIGS. 13 and 14 are isometric views similar to FIGS. 4 and 5 illustrating the insertion of container lids into the stacking device of FIG. 10;

[0036] FIGS. 15 and 16 are isometric views similar to FIGS. 6 and 7 illustrating the insertion of a container with lid into the stacking device of FIG. 10;

[0037] FIG. 16 is an isometric top view of a container fully inserted into the stacking device of FIG. 10;

15 [0038] FIG. 17 is an isometric view of a first side of a third embodiment of the stacking device of the present invention;

[0039] FIG. 18 is an isometric view of a second side of the stacking device of FIG. 17;

[0040] FIGS. 19 and 20 are isometric views similar to FIGS. 4 and 5 illustrating the insertion of container lids into the stacking device of FIG. 17;

20 [0041] FIGS. 21 and 22 are isometric views similar to FIGS. 6 and 7 illustrating the insertion of a container with lid into the stacking device of FIG. 17;

[0042] FIG. 23 is an isometric view of a fourth embodiment of the present invention;

[0043] FIG. 24 is an isometric view of the embodiment of FIG. 24 with container lids stacked therein;

25 [0044] FIG. 25 is an isometric view similar to FIG. 1 of a fifth embodiment of the present invention, with containers and lids stacked therein;

[0045] FIG. 26 is an isometric view similar to FIG. 1 of a sixth embodiment of the present invention, with containers and lids stacked therein;

30 [0046] FIG. 27 is an isometric view similar to FIG. 1 of a seventh embodiment of the present invention;

[0047] FIG. 28 is an isometric view of the embodiment of FIGS. 17-22 with a round container and lid inserted therein;

[0048] FIG. 29 is an isometric view similar to FIG. 18 of an eighth embodiment of the present invention;

5 [0049] FIG. 30 is an isometric view of the device of FIG. 29 with a thermoplastic bag and box attached and supported thereby;

[0050] FIG. 31 is an elevational view of a ninth embodiment of the present invention;

[0051] FIG. 32 is a side elevational view, partly in section, of the embodiment of FIG. 31; and

10 [0052] FIGS. 33 and 34 are isometric views of a further embodiment of the present invention.

Description of the Preferred Embodiments

15 [0053] Referring now to FIGS. 1-3, a first embodiment of a stacking device 40 includes a semicircular plate-shaped main member 42 and at least one upwardly directed support member 44. Preferably, (although not necessarily) five support members 44a-44e extend transversely with respect to the main member 42 and are integral therewith. At least one support member 44, preferably (again not necessarily) the support member 44c, includes a curved main portion 46 that conforms to and abuts an outer periphery 48 of the main member 42. At least one inwardly directed wall member 50, and preferably six wall members 50a-50f, are integral with and extend transversely from the support members 44 in a direction substantially parallel to the main member 42. Each of the wall members 50a-50f is c-shaped and includes opposed ends 52a, 54a through 52f, 54f, respectively.

20 [0054] A first plurality or set of openings 56 is defined between the support members 44a and 44e and the wall members 50a-50f. In the embodiment illustrated in FIGS. 1-9, six openings 56a-56f are defined, although a different number could alternatively be defined by a like number of wall members 50. As seen specifically in FIG 3, the first openings 56a-56f preferably all have the same width W1 defined by a chord representing the shortest distance between opposed portions 58a-58f, 60a-60f of the support members 44.

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30 Preferably, the width W1 is slightly smaller than the overall diameter of a circular container lid 70. As noted in greater detail hereinafter, the width W1 may also be slightly

smaller than the diameter of a peripheral rim of a container 71. (seen in FIGS. 4-7). Inner peripheries 72 of the wall members 50 define a second plurality or set of openings 74a-74f each having a width W2 that is also somewhat smaller than the overall diameter of the container lid 70. Further, each width W2 may be (although not need be) smaller than the width W1 of each first opening 56.

[0055] Referring now to FIGS 4-7 a number of cavities 76a-76e each capable of receiving a circular container lid 70 or a peripheral rim of a container 71 is formed between the support members 44 and the wall members 50a-50f and at least one cavity 76f is formed between the main member 42, the support members 44 and the wall member 50f. A different number of cavities 76 may be formed by a different number of wall members 50, as should be evident.

[0056] Referring now to FIG 8, the main member 42 of the stacking device 40 may be secured to a cabinet or surface 82 by any suitable means, such as fasteners 84a-84c that extend through mounting holes 86a-86c in the main member 42 into the cabinet or surface 82. Alternatively, if desired, double-sided tape, an adhesive, a hook and loop fastener (i.e., Velcro), or other device may be disposed between the main member 42 and the cabinet or surface 82 to secure the stacking device 40 thereto.

[0057] Once the stacking device 40 is mounted as seen in FIG. 8, a user may insert the circular container lid 70 into one of the cavities 76. Once the user aligns the lid with one of the openings 56, the user applies an insertion force to the circular container lid 70 in a first direction into the respective opening 56. The container lid 70 contacts a respective pair of portions 58, 60 (for example, the portions 58a, 60a), which exert a resistance force against the container lid 70. The portions 58, 60 are relatively stiff and capable of flexing a rim of the lid 70 and/or the body of the lid 70 a sufficient degree to allow the container lid 70 to enter the respective cavity 76. Alternatively, the portions 58, 60 may flex to a degree sufficient to allow the lid 70 to enter the cavity 76. In either event, the lid 70 thereafter returns substantially to the undeformed state (or alternatively remains in a flexed condition in contact with the portions 58, 60) to create a first interference fit. Moreover, a second interference fit is established with the wall members 50. The first interference fit prevents the container lid 70 from being removed from the stacking device 40 through the first openings 56 until a sufficient removal force is exerted to overcome the resistance

force exerted by the end portions 58, 60. The second interference fit prevents the container lid 70 of a container 70 from moving downwardly out of the suspension device through the second openings 74.

5 [0058] As should be evident from the foregoing, up to six lids may be stored in the device 40, although a different number of lids could be accommodated depending upon the number of wall members 50 that are provided in the device 40. Also, the main member 42 could be omitted, if desired, in which case one of the outer wall members 50 may be secured by fasteners or other securing means to the cabinet or surface 82. Still further, the device 40 need not be secured to a surface at all; rather, the device 40 may simply be
10 placed on a surface and/or in a cabinet, a drawer, a pantry, a refrigerator or other enclosed space. Still further, the stacking device 40 can optionally be integrally formed with a shelf, such as a refrigerator shelf 88 as seen in FIG. 9.

[0059] As seen in FIGS. 6 and 7, a peripheral rim of a container 71 such as a jar or a thermoplastic disposable container (as seen in FIGS. 4-7) can alternatively or in addition
15 be inserted into one of the cavities 76. This insertion is accomplished in the same manner as described above in connection with FIGS. 4 and 5. This permits the container 71 (with or without a lid mounted thereon) to be supported by the device 40.

[0060] In any of the embodiments described herein, the lid(s) 70 and/or containers 71 may be inserted into the cavities 76 with the device 40 oriented as seen in FIG. 1 (i.e., with the
20 main member 42 down, in which case the arrangement seen in FIGS. 5 or 7 results) or may be inserted with the device in the orientation seen in FIG. 2 (i.e., with the main member 42 up, thereby resulting in an arrangement similar to FIGS. 13 and 14 described hereinafter).

[0061] The remaining FIGS. illustrate other embodiments of the present invention.
25 Referring now to FIGS 10 and 11, a second embodiment of a stacking device 90 includes a semi circular plate-shaped main member 92 and a support member 94 extending transversely with respect to the main member 92. The support member 94 includes a plurality of outwardly flared resilient end portions 100 on a first side 101 of the stacking device 90, and end portions 102 on a second side 103 of the stacking device 90. In the
30 illustrated embodiment, twelve end portions 100a-100f, 102a-102f are provided on each side 101, 103 of the stacking device 90. A number of spaced, inwardly directed wall

members 108 are further provided in alignment with the end portions 100, 102. In the embodiment shown in FIGS. 10 and 11 six 108a-108f wall members are integral with the support member 94 and extend transversely therefrom in a direction substantially parallel to the main member 92.

5 [0062] Each end portion 100a-100f is associated with an opposed end portion 102a-102f, respectively, to define a first set of openings 110a-110f, respectively. As seen in FIG 12, the first set of openings 110a-110f all have a width W1 wherein a chord defined by the shortest distance between the flared resilient end portions 100, 102 is slightly smaller than the overall diameter of a circular container lid 112 or peripheral rim of a container 114 (FIGS. 13-16). Inner peripheries 116 of the wall members 108 define a plurality of second openings 118 each having a width W2 that is smaller than the width W1 of the first openings 110. Preferably, inner peripheries 116a-116f of the wall members 108a-108f define six second openings 116a-116f for receiving the circular container lids 112 or the peripheral rim of a container 114. (FIGS 13-16)

15 [0063] Referring now to FIGS 13-16, and similar to the previous embodiment, five cavities 117a-117e are formed between the support member 94 and wall members 108a-108f and one cavity 117f formed between the main member 92, the support member 94 and the wall member 108a. Each cavity 117 is capable of receiving the circular container lid 112 or the peripheral rim of a circular container 114.

20 [0064] As in the previous embodiment, the main member 92 of the stacking device 90 may be secured to a cabinet or surface 82 by any suitable means or the device 90 may be left free as noted above. A user inserts a circular container lid 112 or the peripheral rim of a container 114, such as a jar or a thermoplastic disposable container (as seen in FIGS. 13-16), into one of the first openings 110. As insertion force is applied the container lid 112 or the peripheral rim of the container 114 contacts the resiliently flared end portions 100, 102, causing the end portions 100, 102 to flex outwardly and permit the lid or container rim to enter the cavity 117 with a snap action. The container lid or the peripheral rim of the container either moves completely into the cavity 117 out of contact with the end portions 100, 102 or remains in contact with the end portions 100, 102. In either event, a first interference fit is established that prevents the container lid 112 or peripheral rim of the container 114 from being removed from the stacking device 90 through the first

openings 110 until a sufficient removal force is exerted to overcome the resistance force exerted by the resiliently flared end portions 100,102. In addition, a second interference fit prevents the container lids 112 or peripheral rim of a container 114 from moving downwardly out of the suspension device through the second openings 118.

5 [0065] As noted in the previous embodiment, the stacking device 90 can optionally be integrally formed as part of a shelf 88.

[0066] A third embodiment of the present invention is shown in FIGS.17-22 and comprises a stacking device 130. Referring now to FIGS 17, the device 130 includes a square-shaped plate main member 132 integral with a support member 134 extending
10 transversely with respect to the main member 132. Any number of inwardly directed wall members 136, preferably six wall members 136a-136f, are integral with the support member 134 and extend transversely therefrom substantially parallel to the main member 132. Preferably, the wall members 136a-136e form five openings 138 b-138f and the main member 132 and wall member 136f form a sixth opening 138a. The wall members
15 136a-136f preferably (although not necessarily) include interference members 140 adjacent the openings 138a-138f that prevent a square-shaped container lid 142 (as seen in FIGS. 21 and 24) from slipping out of the stacking device 130.

[0067] Referring now to FIG 18, five cavities 141a-141e capable of receiving the square container lids 142 or a peripheral rim of a square container 143 are formed between the
20 support member 134 and the wall members 136a-136f and at least one cavity 141f is formed between the main member 132, the support member 134 and the wall member 136f. Preferably, each cavity 141 is capable of receiving the peripheral rim of a container 143 and/or a square container lid 142.

[0068] As in the previous embodiment, the device 130 may be mounted to or integrally
25 formed with a surface.

[0069] Referring now to FIGS 19-22 a square-shaped container lid 142 and/or the peripheral rim of a square shaped container 143 is (are) placed over the interference members 140 and inserted into the stacking device 130 through one of the openings 138. Once past the interference members 140, the container lid 142 and/or peripheral rim of the
30 container 143 rests on the wall members 136. A first interference fit is thus defined in a first direction between the interference members 136 and the container lid 146 and/or the

peripheral rim of the container 143. The wall members 146 further form a second interference fit with the container lid 146 and/or the peripheral rim of the container 143 in a second direction transverse to the first direction to prevent the square container lid 142 or the peripheral rim of the square container 143 from falling through one or more of openings 150a-150f defined by inner peripheral surfaces 151a-151f of the wall members 136a-136f, respectively.

[0070] A user lifts the square container lid 142 or the peripheral rim of container 143 over the interference members 140 to remove the container lid 142 or the container 143 from the stacking device 130.

[0071] All of the embodiments of the stacking device of the present invention are preferably made of a thermoplastic material. Alternatively, any of the stacking devices may be manufactured from any suitable rigid material such as glass, metal, wood, or any other similar materials. A preferable material will be rigid, inexpensive, and have the ability to be readily formed into a desired shape. Suitable plastic materials for any embodiment of the stacking device of the present invention include polypropylene, polyethylene, styrene, polystyrene, nylon, and a wide variety of other homopolymers and copolymers. Any suitable molding technique can be employed to form the stacking devices of the present invention, including but not limited to injection molding and thermoforming. The stacking devices are preferably integrally made but can also be formed in multiple parts that are snapped or pressed together during manufacture and assembly.

[0072] The stacking devices can further have any geometric shape corresponding to the shape of the container inserted therein. For example, the stacking device may have a triangular shape or a rectangular shape for triangular and rectangular shaped containers, respectively. Alternatively, the device need not have a shape corresponding to the shape of the container. Such an arrangement is shown in FIG. 28, wherein round lid(s) 70 and/or container(s) 71 are stored in the device 130 of FIGS. 17-22.

[0073] FIG. 23 illustrates an embodiment of the present invention comprising a device 200 including a triangular body member 202 made of a suitable plastic or other material. The body member 202 is preferably hollow and includes a base surface 204 and side surfaces 206, 208. The base surface 204 may be secured to a shelf, countertop, pantry or

closet surface or any other surface by any suitable means, such as double sided adhesive tape. The side surfaces 206, 208 may have a series of slots 210 formed therein. In the illustrated embodiment, six slots 210a-210f are formed in the side surfaces 206, 208, although a different number of slots may alternatively be provided. Each slot 210a-210f includes a main portion 212a-212f and an enlarged lower portion 214a-214f. One or more lids 216 may be inserted into a corresponding number of the slots 210 such that the lids 216 are supported in a generally upright configuration as seen in FIG. 24. The enlarged lower portion 214 of each slot 210 accommodates an outer raised portion of the lid 216 when the lid 216 is tilted slightly to the side. Thus, the lid 216 is retained in the device 200 by an interference fit between the outer raised portion of the lid 216 and the walls defining the lower portion 214 until the lid 216 is moved to a fully vertical position, whereupon the outer raised portion of the lid 216 moves out of interfering relationship with the walls defining the lower portion 214.

[0074] As is seen in FIG. 24, any number of identical or differing lids 216 may be supported by the device 200.

[0075] FIG. 25 illustrates yet another embodiment of the present invention comprising a device 220 identical to the device 40 of FIG. 1, except that the main member 42 is omitted and twelve cavities 222a-222l (each identical to the cavities 76) are defined by thirteen wall members 224a-224m (each identical to the wall members 50). The device 220 is capable of accommodating two containers 71 with lids 70 in a top-and-bottom arrangement, as seen in FIG. 25.

[0076] Referring next to FIG. 26, a device 240 is identical to the device 90 of FIG. 10, except that a container storage section 242 extends downwardly (as seen in FIG. 26) from the wall member 108a. The container storage section 242 includes an auxiliary support member 244 joined to the support member 94 and a further inwardly directed wall member 246. The auxiliary support member includes outwardly flared resilient ends 248, 250 identical to the ends 100, 102. One or more stacked containers 71 are stored in the container storage section 242 and rest on the wall member 246. The stacked containers 71 are retained therein by the resilient ends 248, 250, which exert a non-zero variable insertion and removal force on the containers 71, as in the embodiment of FIG. 10. One or more lids 70 are stored in the cavities 117, also as in the embodiment of FIG. 10.

[0077] FIG. 27 illustrates an embodiment wherein a device 260 is identical to the device 40 of FIG. 1, except that an extension member 262 is substituted for the main member 42. The extension member 262 includes a base wall 264, a collar 266 extending axially from the base wall 264 and a peripheral locking flange 268 extending radially outwardly from the collar 266. The locking flange 268 is sized and configured to slide into and fit snugly within a cavity 76a of a mating device identical to the device 260 so that the devices can be assembled together and retained in a stacked relationship. Any number of such devices 260 can be so assembled, thereby permitting storage of virtually any number of lids and/or containers.

[0078] Referring next to FIGS. 29 and 30, any of the embodiments disclosed herein may be modified to add other holding apparatus thereto. For example, the device 130 of FIG. 18 may include a bag holding section 280 formed integrally with a side wall 282. The bag holding section may include one or more slots 284 wherein each slot 284 is adapted to receive and retain an end of a thermoplastic storage bag 285 (FIG. 30) therein. Three slots 284a-284c are illustrated in FIGS. 29 and 30, although any number can be provided. The slot 284a will be described in detail, it being understood that the remaining slots 284b and 284c are identical thereto. The slot 284a includes a main portion 286a and a head portion 288a. The main portion 286a has a width (from top to bottom as seen in FIG. 29) greater than the combined thicknesses of wall portions 290a, 290b of the thermoplastic bag 285, but less than the combined thickness of closure portions 292a, 292b of the bag 285. Alternatively, the width of the main portion 286a may be less than the width of an optional slider 294 that assists in closure of the closure portions 292. The bag 285 may be inserted into the slot 284a such that the closure portions 292 of the bag 285 reside in the head portion 288a and such that the wall portions 290 of the bag extend outwardly through the main portion 286a and hang downwardly from the holding section 280. The bag 285 is retained in the slot 284a by the interference between the closure portions 292 and/or the slider 294 and the main portion 286a of the slot 284a.

[0079] The bag 285 and other bag(s) disposed in the remaining slots 284b and 284c overlie one another in a shingled arrangement. If desired, the slots 284 may be disposed in other than the horizontal arrangement shown in FIGS. 29 and 30.

[0080] The device 130 may further include a carton or box holding section 300 disposed on a side thereof opposite the bag holding section 280. The holding section 300 may include one or more hooks or arms 302 that may extend through associated slot(s) 304 of a carton or box 306 to suspend the carton or box 306 therefrom.

5 [0081] Referring next to FIGS. 31 and 32, a further embodiment of the present invention comprises a holding device 320 comprising a support member 322 and a plurality of wall members 324 integrally formed with the support member 322. The support member 322 is either integral with or suitably secured to a support member, such as a shelf 326. The wall members 324 are inclined with respect to a horizontal plane and define inclined cavities
10 328, each of which is sized to accept a container lid 70 therein. Each lid 70 is retained in the associated cavity 328 by gravity, and hence, there is no need to provide an interference fit with the lid(s), although such an interference fit may be provided, if desired.

[0082] FIGS. 33 and 34 illustrate a device 340 comprising a further embodiment of the present invention. The device 340 includes a cylindrical portion 342 having a longitudinal
15 gap 344. The cylindrical portion 342 terminates at a wall portion 346 (FIG. 33) at a lower end of the device 340. A slot 348 is disposed at the lower end of the device 340 adjacent the wall portion 346. As seen in FIG. 34, one or more lids 70 are stacked in the device 340 such that a tab 350 of the lid 70 extends outwardly through the slot 348. The tabs of additional lids 70 stacked atop the first-named lid 70 extend outwardly through the
20 longitudinal gap 344. The width and height of the slot 348 are such that a user may readily withdraw a single lid 70 from the device 340, thereby allowing the stack of lids to move downwardly and thereby permit the user to withdraw another lid 70. The slot 340 may be sized to produce a slight interference fit with the lids as the lids are being
25 withdrawn so that each lid experiences a variable resistance force, or no interference fit may be provided, as desired.

Industrial Applicability

[0083] As should be evident, one may use single or ganged multiple stacking devices that are secured to a vertical support surface, a horizontal support surface or a non-horizontal
30 and non-vertical support surface in any configuration and/or orientation desired by the user so that the containers are maintained in a desired arrangement.

[0084] The stacking device allows a user to address a variety of home storage problems. The stacking device enables a user to store and organize items to fully utilize available storage space. For example, in a refrigerator, closet, pantry, or the like, the present invention allows a user to hang container lids and/or containers from the underside of a shelf, thus freeing up the shelf surface space for the storage of other items. This type of use also ensures that the lids and containers are clearly in view and always in the same location, thus increasing the likelihood that any perishable food will be utilized before spoilage occurs.

[0085] Numerous modifications to the present invention will be apparent to those skilled in the art in view of the foregoing description. Accordingly, this description is to be construed as illustrative only and is presented for the purpose of enabling those skilled in the art to make and use the invention and to teach the best mode of carrying out the same. The exclusive rights to all modifications which come within the scope of the appended claims are reserved.